ECO - EFFICIENCY - DRIVER OF SUSTAINABLE DEVELOPMENT STRATEGY

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Abstract

The issue of eco - efficiency has gained particular importance in economic theories relating to sustainable development. The acceptance of the sustainable development definition stipulated in the Brundtland Report (Our Common Future) in 1986 was a key moment in triggering massive approaches to environmental issues, closely related to economic growth and social inclusion. The complementarity, interaction and the intensity of influence of the three pillars of sustainable development (economic - social - environment) led to major changes in the priorities and report those pillars, yielding a current of thought that gives a fundamental role to the ecological pillar. This background led to the emergence of several new paradigms, namely eco - economy and green economy, eco - innovation, eco - technology, cross - industry, eco - efficiency etc.

Key words: *eco –efficiency, innovation, investments, green economy, sustainable development*

Introduction

Being a management strategy that connects financial and environmental performance in order to create more value with less impact on the environment, eco-efficiency is not limited simply to the marginal efficiency of existing practices and habits. This should stimulate creativity and innovation in finding new ways to do these things. Companies can use eco-efficiency as an essential cultural element embedded in their political activity or their mission objective. They may determine also eco-efficiency goals for environmental management systems and environmental management systems integrated. And it is a useful tool for monitoring and reporting of environmental and economic performance and to facilitate business communication and dialogue with stakeholders

1. Definitions of eco – efficiency

Eco-efficiency is a management philosophy that encourages businesses to seek ways to eliminate potential damage to the environment, and provides economic benefits concurrently, being a key contribution to the business for a sustainable society.

Lately there has been great progress in the implementation of cross-efficiency worldwide. Industry, for example, has had considerable success in reducing pollution and emissions, as well as removing hazardous materials from production processes. If, in the past, entrepreneurs watched environmental protection and sustainable development, as being problems and risk factors, in the current period they are seen as opportunities and sources of efficiency and growth.

In the specialized literature has been devoted many definitions of the term of "eco-efficiency", namely:

• World Business Council for Sustainable Development (World Business Council for Sustainable Development) defines eco-efficiency as "realized by providing competitively priced goods and services that satisfy human needs and bring quality of life while simultaneously and gradually reducing environmental impacts and resource intensity throughout the life cycle to a level at least according to the carrying capacity of the Earth. "

• OECD defines eco-efficiency as "ecological efficiency with which resources are used to meet human needs" and defines it as the ratio between output (value of goods and services produced by a firm, sector or the economy as a whole) and inputs (sum of environmental pressures generated by the firm, sector, or the economy as a whole);

• Academics and practitioners use the term "eco-efficiency" to synthesize the value "concomitant economic and environmental efficiency";

• European Environment Agency (EEA) defines the concept as "more wealth through low utilization of natural resources" and can be obtained by decoupling the use of resources and the creation of pollutants from economic development and general welfare.

2. Measures necessary to achieve the objectives of eco efficiency

Creating an eco-efficient Europe has the potential to become the incentive to reconnect makers and citizens to achieve common goals: increasing interest in European integration and the European single market, increase the welfare of European citizens and the identification of growth opportunities environmental compliance. We can say with certainty that moving towards a concept of eco-efficient Europe by collaborating EU institutions, Member States and the public and private sectors, will contribute to achieving the strategy "Europe 2020" and smart growth, sustainable and inclusive and to foster the competitiveness of Europe.

To achieve these objectives it is necessary to implement the following measures:

• building a strong market for products and services that contribute to a greener economy;

• resource price should reflect the real cost of their use;

• increase public and private investment for green products and services;

• developing new approaches for Europe 20/20/20 targets;

• building a knowledge-based society, empowering stakeholders and consumers.

Private business can not provide singular the achievement of the goal of eco-efficiency. The progress and achievement of eco - efficiency raises the translation of action measures beyond internal actions of individual companies, requiring close cooperation between stakeholders. It requires that the whole society work together to create a framework that is able to let companies and markets to become eco-efficient. In this respect, governments have an important role to play in creating these conditions.

Governments can implement a policy that promotes economic growth and a reduction in resource use and pollution avoid and create strong incentives for eco-innovation. Such policy measures that can be considered levers to boost entrepreneurs initiatives to ensure the creation of alternative business more eco-efficiency may include items such as:

• identify and eliminate harmful subsidies;

• internalisation of environmental costs;

• implement the environmental tax reform, or transferring taxation of profits or labor toward taxation of resource use and pollution;

• development and implementation of new economic instruments for environmental protection;

• Promotion of voluntary initiatives and negotiated agreements.

The efforts to promote a more eco – efficient economy can also be compromised by the current crisis. Lower oil prices have already reduced incentives to switch to alternative energy sources - and falling commodity prices lead to lower pressures in terms of more efficient use of these resources. Innovation environment is also affected by the behavior of the consumer, especially in mitigating consumer interest towards cheaper products. Firms are reluctant, therefore, to introduce innovations, because it is more difficult to obtain a financial benefit. Another impediment to finance investment and therefore innovation is the banking restrictions regarding loans, fact that leads to increasing difficulties on implementation of investment projects, which involve capital investment.

3. The benefits of eco - efficiency

The potential benefits of eco-efficiency are enormous and include:

• **stimulate interest in the European community and deepening of the European internal market**. The single market is the main "supplier" of competitiveness, security of supply and sustainability in Europe. Capturing eco-efficiency as an integral part of the Single Market project would not only bring benefits to consumers and businesses interested in eco-efficiency, but would also be an important opportunity to inspire new interest in European integration.

• **increasing productivity and saving.** Efficient use of energy, raw materials and water, preventing the accumulation of waste and increasing recycling process materials will reduce operating and production costs and therefore reduce costs for producers and consumers alike. They will materialize in the following estimates:

- up to 30% of global demand for energy, water, land and materials in 2030 could be met by improving the extraction, processing and use of resources. This would lead to a saving of 2.3 billion by 2030 with the possibility of increasing this benefit as a result of the introduction of a global price on carbon and energy and by the elimination of agricultural subsidies.

- streamline the recycling process should reduce costs on the economy and society by reducing the demand for raw materials, increasing the reuse of valuable materials and reduce energy consumption and greenhouse gas emissions from extraction and processing.

- full implementation of existing energy efficiency measures and new ones can lead to savings of approximately € 1,000 per household each year, being a major financial benefit to European consumers.
- according to "Eco-innovation and resource efficiency: gains from reforms" carried out by Copenhagen

Economics (2011), the implementation of all renewable energy targets could lead to substantial savings for consumers in the EU (between 8-17 billion annually up to 2020). Moreover, implementation of smart energy networks to eliminate power distribution losses and ensure higher energy efficiency will lead to savings of 52 billion euros per year in the EU.

• **increasing opportunities for innovation**. Implement innovative solutions to existing and developing new products and services will help to reconcile economic and environmental challenges in climate and energy targets in Europe and to transform European community into a world leader in promoting eco-efficiency.

• **the emergence of social and environmental benefits**. Ensuring efficient use of natural resources and creating a healthy living environment by conserving natural resources and reducing waste volumes and emissions are the basis of European welfare policy. Eco-efficiency can contribute to combating poverty and creating jobs. Fully implement of energy efficiency measures could create up to two million jobs in the renewable energy sector and can create up to three million jobs by 2020.

• reduction of dependence on foreign sources of energy and resources. Imports of raw materials, including the energy represented in 2010 approximately 30% of EU importsamounting to 528 million euros. More efficient use of of own resources, including energy and minerals, and increased recycling process could help Europe to ensure a sustainable supply of energy and other raw materials, and reduce the impact of volatile price movements on its economy.

• **Increase the competitiveness and efficiency of EU industry to compete in a highly competitive global market.**

• **Promote eco-efficiency could meet increasing global demand for resources to meet the challenge of rising prices and to alleviate the shortage of resources not only in Europe but outside the continent.**

The public sector can play an important role in promoting structural changes in society and greening the economy. It can be both a producer and a major consumer of green products and services. The public sector has an important role to play in resource management both at national and EU level, given that it holds about 46% of utilities for waste management facilities and about 47% of water management in the EU. If the prices of resources such as water, should reflect the real cost of their use, and where there is a functioning market for recycling and re-use of materials, this would lead to a direct financial benefit to the public sector.

The public sector is also a major consumer of resources, products and services, and must play a more active and efficient role in the use of public funds for the benefit of the whole economy.

We can say that there are significant opportunities for the public sector to increase efficiency and contribute to greening the economy at both national and Community level. For example, green public infrastructure, including transportation and buildings also help promote the advancement of eco-efficiency and green products and services. It is important for the public to understand that failure to invest now in eco-efficiency means the loss of public money in the long run.

Even if, currently, there are several measures and solutions to support eco-efficiency, a number of new innovative products and services will be necessary to reorient the European economy towards a greener way. By greening and reducing the environmental impact of their operations and by introducing ecological products and services on the market, the private sector contributes to the greening of the European economy and provide solutions which contribute to global sustainability.

Business rationale for promoting eco-efficiency is simple. Eco-efficiency and performance improve business environment and helps companies face emerging market trends and challenges of different regulations, so as to reduce costs and gain competitive advantage and ensure profitability and sustainability within long term. Efficiency is always a priority for any company. But if it include the creation of economic value and reduce environmental impact and resource use at the same time, the added value is even more important.

Eco-efficiency is measured as the ratio between the outputs (revenues, high quality goods and services, employment, GDP, etc.) and the amount of life cycle impact of the product or service on the environment:

Eco-efficiency = product or service value / amount lifecycle environmental impact

Life cycle assessment of a product represent the evaluation and analysis of the consequences of the product action on environment; the evaluation seeks the product from the extraction and processing of raw materials, through all stages of its production, transportation and distribution, use, viability, maintenance and recycling up to his storage or reintegration in the environment.

It is also useful to show the distinction between environmental effectiveness and economic-environmental efficiency, (eco-efficiency) (Schaltegger 1996):

Eco-efficiency = value added / environmental impact

Depending on their values, stakeholders will assign different weights to economic and environmental performance and, equally, different weights for environmental impact. Schaltegger (1996) provides an example

of how to calculate the eco-efficiency of investments (see table no. 1.). Both investments A and B are evaluated to estimate the eco-efficiency when conducting investment projects to reduce emissions equipment for the production of goods that have the same use. As it can be seen, the investment A is less expensive but provides less improvement of the environment (added value) than the investment B and is therefore less efficient than the investment B.

Table no. 1

Measuring investment projects eco - efficiency

	Investment A	Investment B
Lifetime payments	-200	-270
Minimal environmental cost	-100	-160
Eco - efficiency	100/200 = 0,5	160/270 = 0,6
Rank	2	1

Source: Arne Eik, Eco-efficiency – state of the art, 1998, pag. 2

In the financial evaluation of the organization's, eco-efficiency measurement may be useful for delivering benefits such as:

- Increasing production;
- Reducing investment in fixed assets and assets;
- Reducing the tax burden;
- Reducing the risks and, default, the price of assuming the risks.

Conclusion

Eco-efficiency can become a true successful European model regarding the desire to ensure the conciliation of economic growth with environmental protection. Thus, the design of efficient urban transport systems, new business models, production and marketing of products and services that are more environmentally friendly and a more efficient use of natural resources, including energy, water, raw materials could bring enormous benefits to the economy and to the society as a whole. The investments in modern production technologies, which is based on mechanisms that ensure high environmental efficiency, in environmental goods and services, as well as the promotion of a eco - efficiency market, both internally and externally, can contribute to the achievement of sustainable development strategy assumed at Community level.

In Romania, like in other central and eastern European countries, promoting and implementing measures aiming to ensure ultimate eco - efficiency of production and consumption processes, and implementing an effective system of financing environmental projects are hampered by many factors, including:

- the action plan for the environment protection has large gaps that have their origins in people's attitude vis-à-vis this issue;
- serious financial problems of industrial enterprises which lead to the postponement of renewal outdated and polluting technologies;
- slow rhythm of privatization has also implications in this regard;
- poor development of the banking system;
- the early stage of development in which the capital market limits the use of sophisticated financial instruments;
- political decision-making processes and budgeting, most often neglect environmental issues;
- economic decisions are not always optimal in terms of environmental protection;
- Non-governmental organizations rarely influence effectively decision making.

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